

Remarks

Claims 13-22 are pending. Claims 1-12 were cancelled previously. Claim 22 is cancelled herein. No claims are currently amended. No new matter is added. All rejections are respectfully traversed.

Claims 13-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang, et al., (U.S. 5,917,819 – Yang).

Claim 22 is cancelled without prejudice or disclaimer.

Regarding claims 13-21, Yang describes a two-stage hierarchical look-up function performed in an ATM switch. A first lookup engine at a receiving input/output module (IOM) determines all IOMs in the switch that have ports that will transmit a received cell. A second lookup engine, at each transmitting IOM, determines which ports of the particular IOM will transmit.

In contrast, the invention is switch that has a lookup engine to retrieve an initial port bitmask (claim 13). The operation of the hardware is interlocked with the operation of a network processor that can operate in parallel with the lookup engine to modify a port bitmask of the received packet. The lookup engine cannot forward the packet until released by the network processor. The network processor then sends the look-up engine an indication that the processing function has been executed. This is very different than what is described in Yang.

Claimed is a look-up engine operative to retrieve a port bitmask in response to a header portion of a received packet and to forward the received packet only in response to receiving a modified port bitmask. Yang never teaches, describes, shows or suggests either modifying a port bitmask, or a modified port bitmask. Yang explicitly distinguished between a port bitmask and a connection identifier (CID), see col. 1, lines 52-64, below:

multiple outgoing VPI/VCIs for multicast transmission. When a multicast cell enters the switch through an I/O module ("IOM"), the cell VPI/VCI is mapped to a smaller, local address, i.e., multicast identifier ("MID"), which is copied to the cell header. The cell is then forwarded to the appropriate IOMs for transmission. The IOMs each have a first lookup table for providing a port bitmask, and a connection identifier ("CID") in response to the cell MID. The IOMs also have a second lookup table for providing a VPI/VCI in response to the CID and, in the case of a multiport-multicast cell, in response to the port CID plus the port identification, i.e., the CID and the port identification are added to provide an address value. The IOM's advantageously distinguish

A port bitmask and a CID are provided in response to receiving a multicast identifier (MID), which is generated when a VPI/VCI is mapped to a local address. The MID is then copied to a cell header. It is taught by Yang to get a new CID in response to particular circumstances, but never modify or get a new port bitmask. The Examiner will note that Yang distinguishes the CID from the port bitmask, as the VPI/VCI is provided only in response to the CID.

Each I/O module (IOM) includes a lookup table for CIDs and bitmasks, see col. 2, lines 40-45, below:

40 ("ATM") switch 8 for transmission of ATM cells. The switch includes fourteen input output modules ("IOMs") 10 and a switching fabric 12. The IOMs each include a 64k×16 bit RAM CID/bitmask lookup table 14, a 128k×32 bit RAM output translation lookup table 16 and an incoming cell
45 translation circuit 18 with an identifier lookup table 20. Each

As is explicitly taught by Yang, the CID and the MID are based on the VPI/VCI of a cell, see. Col. 3, lines 12-15, below:

contains a global multicast identifier (“MID”). The CID and MID are based on the VPI/VCI of the incoming cell and ascertained via reference to an identifier lookup table **20** in the translation circuit **18**. The presently disclosed switch ¹⁵

No such thing is taught for the port bitmask. It is the CID that is overlaid on the MID in the local header, see, col. 3, line 60-col. 4, line 5, below:

Upon receipt of the multicast cell at the respective IOM’s ⁶⁰ for which the IOM bits are set in the multicast cell header, the CID/bitmask lookup table **14** is indexed using the MID to locate the port bitmask **36** which identifies the appropriate ports within the IOM from which the multicast cell will be transmitted. The CID/bitmask table **14** is divided into two ⁶⁵ 32k sections **44**, **46**. The first section **44** contains paired port bitmask/reserved entries indexed by CID. The second sec-

tion **46** contains paired port bitmask/CID entries indexed by MID. The MID is used as an index to get the port bitmask and CID from the second section **46** in two read operations.

The CID **48** which is overlaid on the MID in the local ⁵ header. In the case of multicast cell which is destined for

There is never a teaching of modifying a port bitmask, as claimed.

Since Yang never teaches receiving a modified a port bitmask, Yang can never teach only forwarding a packet in response to receiving a modified port bitmask, as claimed. Further, Yang can never teach a network processor operable to perform a processing function, in response to at least one of said received packet and said port bitmask, to generate the modified port bitmask and to provide the modified port bitmask to the lookup engine, as claimed. Yang’s teaching of overlaing a CID on an MID can never teach a modified port bitmask. Therefore, the rejection based on Yang should be reconsidered and withdrawn.

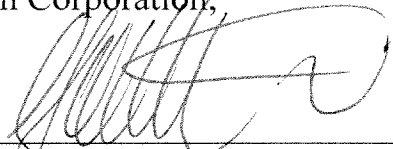
Claims 14-21 depend from claim 13, and inherit the limitations of Independent claim 13. Since Yang fails to teach, suggest or show the explicit elements of claim 13 that require a modified port bitmask in order to forward

a received packet, claims 14-21 are therefore allowable as depending from claim 13.

It is believed that this application is now in condition for allowance. A notice to this effect is respectfully requested. Should further questions arise concerning this application, the Examiner is invited to call Applicant's attorney at the number listed below. Please charge any shortage in fees due in connection with the filing of this paper to Deposit Account 50-3650.

Respectfully submitted,
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